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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/681,326	10/09/2003	Takashi Kuramochi	OKI.585	3369

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EXAMINER	
PHU, SANH D	
ART UNIT	**PAPER NUMBER**
2618	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	**Application No.** 10/681,326	**Applicant(s)** KURAMOCHI, TAKASHI	
	Examiner Sanh D. Phu	**Art Unit** 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *7-10* is/are allowed.

6)☒ Claim(s) *1,2,6,16 and 17* is/are rejected.

7)☒ Claim(s) *3-5 and 11-15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 10/9/03 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/9/03, 10/26/04, 8/2/05, 10/21/05

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The IDS filed 10/9/2003, 10/26/2004, 8/2/2005 and 10/31/2005 have been considered and recorded in the file.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

3. The drawings are objected to because in figure 6, label "SW61" is suggested to be changed to --SW62-- in order to be consistent with a description in the Specification, page 15, lines 1-4.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claims 11-15 are objected to because of the following informalities:

Claim 11, lines 12-13, recites the limitation "a third switch which connects the output of the transmitter circuit to the input of the receiver circuit in response to **the transmission signal**". This limitation is suggested to be changed to -- a third switch which connects the output of the transmitter circuit to the input of the receiver circuit in response to **the transmit control signal**", because of the following reason:

As illustrated in figure 6, the figure shows the third switch (SW61) which connects the output (n61) of the transmitter circuit (comprising (105)) to the input (inputted to device (106)) of the receiver circuit (comprising (106, 107) in response to **the transmit control signal (112)**, not in response to the transmission signal (110), which is outputted from the transmitter circuit (see also Specification, page 15, lines 17-25).

Appropriate correction is required.

Claims, dependent on claim 11, are therefore also objected because of the above reason.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole

> would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 2, 6, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Izumi (6,233,227), provided by the applicant in the IDS filed on 10/26/05, in view of Hoshigami et al (5,477,532).

-Regarding to claim 1, see figures 1, 3A, 3B, 4, and 7, and col. 8, lines 25-34, Izumi discloses a receiver/transmitter circuit (see figure 7), comprising:

an antenna terminal (11, 12) (see figure 7, col. 6, lines 29-35) ;

a transmitter circuit (comprising (31, 36) (see figure 7) which outputs a transmission signal in response to a transmit control signal (TX-SW) (see col. 4, lines 6-14, col. 7, lines 18-26);

a receiver circuit (comprising (21)) (see figure 7) which receives a reception signal from the antenna terminal (see col. 6, lines 29-35); and

a waveform control circuit (37) (see figure 7) including a circuitry (373, 372) (see figure 2), which outputs a switching signal (see figure 3B) having a gradual logic transition in response to the transmit control signal (see figure 3A) (see col. 7, lines 28-46, col. 8, lines 25-34).

Izumi does not disclose a first switch connected between the antenna terminal and the transmitter circuit, wherein the first switch transfers the transmission signal to the antenna terminal in response to the switching signal; and a second switch connected between the antenna terminal and the receiver circuit, as claimed.

However, Izumi discloses a Tx-Rx switching device (13) being connected between the antenna terminal the transmitter circuit and between the antenna terminal and the receiver circuit wherein the switching device transfers the transmission signal to the antenna in response to the switching signal (see figures 2, 3B, 7, and col. 8, lines 25-38).

Hoshigami et al teaches a Tx-Rx switching device (1) comprising a first switch, which has a transmit port (TX), an antenna port (ANT) and circuit elements between them for being connected between an antenna terminal (at the antenna port) and a transmitter circuit (at the transmit port), wherein the first switch transfers a transmission signal (being inputted at the transmit port) to the antenna terminal in response to a switching signal (V_1); and a second switch, which has a receive port (Rx), the antenna port (ANT) and circuit elements between them for connected between the antenna terminal (at the antenna port) and the receiver circuit (at the receive port), (see figure 2, and col. 3, lines 3-20).

Since Izumi does not teach in detail how the Tx-Rx switching device (13) is implemented, it would have been obvious for a person skilled in the art to implement the Tx-Rx switching device (13), a taught by Hoshigami et al, in such a way that the Tx-Rx switching device would comprise a first switch, which has a transmit port (TX), an antenna port (ANT) and circuit elements between them for being connected between the antenna terminal (11, 12) (see Izumi, figure 7) and the transmitter circuit (comprising (31, 36) (see Izumi, figure 7), wherein the first switch would transfer the transmission signal (being inputted at the transmit port from the transmitter circuit) to the antenna terminal in response to the output signal of waveform control circuit (37) (see Izumi, figure 7), being derived from the switching signal (see Izumi, figure 2); and a second switch, which has a receive port (Rx), the antenna port (ANT) and circuit elements between them for being connected between the antenna terminal (at the antenna port) and the receiver circuit (at the receive port) so that in such the implementation, the antenna terminal would be coupled to the transmitter circuit and the receiver circuit via the Tx-Rx switching device, as required.

Therefore, with the such the implementation, Izumi in view of Hoshigami et al teaches the first switch connected between the antenna terminal and the transmitter circuit, wherein the first switch transfers the transmission signal to the antenna terminal in response to the switching signal; and the second switch connected between the antenna terminal and the receiver circuit, as claimed.

-Regarding to claim 2, Izumi in view of Hoshigami et al teaches that the first switch includes a first transistor which has a first terminal connected to the antenna terminal, a second terminal connected to the transmitter circuit at the transmit port and a control terminal (coupled to (V_2)), and wherein said second switch includes a second transistor which has a first terminal connected to the antenna terminal, a second terminal connected to the receiver circuit at the receive port and a control terminal (coupled to (V_1)) (see Hoshigami et al , figure 2).

-Regarding to claim 6, Izumi teaches a power amplifier (31) which outputs the transmission signal in response to the transmit control signal (see figure 7).

-Regarding to claim 16, see figures 1, 3A, 3B, 4, and 7, and col. 8, lines 25-34, Izumi discloses a receiver/transmitter circuit (see figure 7), comprising:

an antenna terminal (11, 12) col. 6, lines 29-35);

a transmitter circuit (comprising (31, 36)) which outputs a transmission signal (outputted from (31) in response to a transmit control signal (TX-SW) (see col. 4, lines 6-14, col. 7, lines 18-26);

a phase locked loop circuit (40) which outputs an oscillation signal (Flo) to the transmitter circuit (see col. 6, lines 36-41);

a delay circuit (37) which receives the transmit control signal and outputs a delayed transmit control signal as a switching signal (see col. 8, lines 25-34); and

a receiver circuit (comprising (21)) which receives a reception signal from the antenna terminal (see col. 6, lines 29-35).

Izumi does not discloses a first switch connected between the antenna terminal and the transmitter circuit, wherein the first switch transfers the transmission signal to the antenna terminal in response to the switching signal; and a second switch connected between the antenna terminal and the receiver circuit, as claimed.

However, Izumi discloses a Tx-Rx switching device (13) being connected between the antenna terminal the transmitter circuit and between the antenna terminal and the receiver circuit wherein the switching device transfers the transmission signal to the antenna in response to the switching signal (see figures 2, 3B, 7, and col. 8, lines 25-38).

Hoshigami et al teaches a Tx-Rx switching device (1) comprising a first switch, which has a transmit port (TX), an antenna port (ANT) and circuit elements between them for being connected between an antenna terminal (at the antenna port) and a transmitter circuit (at the transmit port), wherein the first switch transfers a transmission signal (being inputted at the transmit port) to the antenna terminal in response to a switching signal (V_1); and a second switch, which has a receive port (Rx), the antenna port (ANT) and circuit elements between them for connected between the antenna terminal (at the antenna port) and the receiver circuit (at the receive port), (see figure 2, and col. 3, lines 3-20).

Since Izumi does not teach in detail how the Tx-Rx switching device (13) is implemented, it would have been obvious for a person skilled in the art to implement the Tx-Rx switching device (13), a taught by Hoshigami et al, in such a way that the Tx-Rx switching device would comprise a first switch, which has a transmit port (TX), an antenna port (ANT) and circuit elements between them for being connected between the antenna terminal (11, 12) (see Izumi, figure 7) and the transmitter circuit (comprising (31, 36) (see Izumi, figure 7), wherein the first switch would transfer the transmission signal (being inputted at the transmit port from the transmitter circuit) to the antenna terminal in response to the output signal of waveform control circuit (37) (see Izumi, figure 7), as the switching signal (see Izumi, figure 2); and a second switch, which has a receive port (Rx), the antenna port (ANT) and circuit elements between them for being connected between the antenna terminal (at the antenna port) and the receiver circuit (comprising (21) (see Izumi, figure 7) (at the receive port) so that in such the implementation, the antenna terminal would be coupled to the transmitter circuit and the receiver circuit via the Tx-Rx switching device, as required.

Therefore, with the such the implementation, Izumi in view of Hoshigami et al teaches the first switch connected between the antenna terminal and the transmitter circuit, wherein the first switch transfers the transmission signal to the antenna terminal in response to the switching signal; and the second switch connected between the antenna terminal and the receiver circuit, as claimed.

-Regarding to claim 17, Izumi teaches that the transmitter circuit is connected to the phase locked loop circuit and includes a power amplifier (31) which outputs the transmission signal in response to the transmit control signal (see figure 7).

Allowable Subject Matter

7. Claims 7-10 are allowed.

-Regarding to independent claim 7, Izumi in view of Hoshigami et al teaches a receive/transmitter circuit comprising an antenna terminal, a transmitter circuit operating in response to a transmit control signal, a receiver, a first switch and a second switch, as claimed, but Izumi in view of Hoshigami et al fails to further teach a ground voltage node; a resistor connected to the ground voltage node; and a third switch which connects the transmitter circuit to the resistor in response to the transmit control signal.

8. Claims 11-15 would be allowable if rewritten or amended to overcome the objection, set forth in this Office action.

-Regarding to independent claim 11, Izumi in view of Hoshigami et al teaches a receive/transmitter circuit comprising an antenna terminal, a transmitter circuit operating in response to a transmit control signal, a receiver, a first switch and a second switch, as claimed, but Izumi in view of Hoshigami et al fails to further teach a third switch which connects the output of the transmitter circuit to the input of the receiver circuit in response to the transmission signal.

9. Claims 3-5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

-Regarding to claim 3, Izumi in view of Hoshigami et al fails to further teach that the waveform control circuit includes a resistor and a capacitor, wherein a first end of the resister is connected to the control terminal of the first transistor, and a second end of the resistor is connected to receive the transmit control signal, and wherein the capacitor is connected between the first end of the resistor and a ground voltage node.

-Regarding to claim 4, Izumi in view of Hoshigami et al fails to further teach that the waveform control circuit includes a first node, a current source circuit which outputs a set current to the first node in response to the transmit control signal, a ground voltage node and a capacitor connected between the first node and the ground voltage node.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References (6,411,660) and (6,480,553) are additionally cited because they are pertinent to the claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sanh D. Phu whose telephone number is (571)272-7857. The examiner can normally be reached on M-Th from 7:00-17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew D. Anderson can be reached on (571) 272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sanh D. Phu
Examiner
Division 2618

4/20/06

SANH D. PHU
PATENT EXAMINER

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